

AMENDMENTS TO THE CLAIMS

A complete set of claims showing the requested amendments is shown below:

1. (Currently amended) A method for monitoring the state of a vehicle chassis, especially of rail vehicles, characterised in that the method comprising:
 - measuring physical variables ~~(3)~~ are measured on the chassis by means of sensors ~~(21, 22)~~;
 - providing a model of the vehicle which continuously identifies parameters of the vehicle and uses such parameters to continuously compile modelled variables in a simulatory prognosis of the vehicle behaviour;
 - comparing the measured and eventually processed variables ~~(6)~~ are compared with the modelled variables ~~(7)~~ by means of a processing unit ~~(24)~~, wherein the modelled variables are determined from specific variables;
 - performing a classification into classes of causes is performed ~~from on the basis of~~ the comparison ~~(8)~~ by means of a processing unit ~~(24)~~; and
 - ~~an evaluation evaluating is carried out as a result of the classification.~~
2. (Currently amended) The method according to claim 1, characterised in that wherein speeds, accelerations and/or forces are measured as physical variables ~~(3)~~.
3. (Currently amended) The method according to any one of claims 1 or 2, characterised in that the processing unit ~~(24)~~ comprises claim 1, further

comprising:

3. - ~~a model (1, 25) of the vehicle which continuously identifies the parameters of the vehicle and by which means a simulatory prognosis of the vehicle behaviour is continuously compiled.~~

and/or

- determining or updating a at least one damage evolution or ageing model (9) of vehicle components which is used to determine and/or update the remaining lifetime (10) of vehicle components before a critical state is reached or before a necessary maintenance measure is needed, using at least one damage evolution or ageing model of the vehicle components.
4. (Currently amended) The method according to any one of the preceding ~~claims~~claim 1, characterised in that ~~wherein~~ the comparison (8) of the measured variables (6) and the modelled variables (7), eventually after some processing, is made by means of a correlation (2).
5. (Currently amended) The method according to any one of the preceding ~~claims~~claim 1, characterised in that ~~wherein~~ the classification is performed by means of an electronic ~~the~~ processing unit (24), in particular by means of a computer.
6. (Currently amended) The method according to any one of the preceding ~~claims~~claim 1, characterised in that ~~wherein~~ a ~~the~~ classification is made as to whether a cause inside the vehicle or an external cause is involved.
7. (Currently amended) The method according to any one of the preceding ~~claims~~claim 1, characterised in that ~~wherein~~ a ~~the~~ classification is made as to the location of the cause involved inside the vehicle.

8. (Currently amended) The method according to ~~any one of the preceding claims~~claim 1, characterised in that ~~wherein~~ the modelled variables are calculated.
9. (Currently amended) A device for monitoring the state of a vehicle chassis, in particular for ~~applying the method according to any one of the preceding claims~~, comprising:
- one or more sensors ~~(21, 22)~~ for measuring physical variables on the chassis;;
 - a processing unit ~~(24)~~
 - for calculating modelled variables, by continuously identifying vehicle parameters and continuously compiling a simulatory prognosis of the chassis behaviour using a model of the chassis;
 - ~~a processing unit (24) for comparing the measured and eventually processed variables with the modelled variables; and,~~
 - ~~a processing unit (24) for classifying as a result of the comparison; and~~
 - means for evaluating the classified results.
10. (Currently amended) The device according to claim 9, characterised ~~wherein~~in that the processing unit ~~(24)~~ comprises:
- ~~a model of the chassis (1, 25) which continuously identifies its parameters and by which means a simulatory prognosis (5) of the chassis behaviour is continuously compiled~~

and/or

- at least one damage evolution or ageing model ~~(11, 26)~~ of chassis components which is used to determine ~~and/or~~ update ~~the~~ a remaining lifetime (12) before a critical state is reached or before a necessary maintenance measure is required.
11. (Currently amended) The device according to claim 9 ~~or 10~~, characterised in ~~that~~ wherein an interface to a superordinate control system (27) of the vehicle is connected to the processing unit ~~(24)~~, via which data on the ~~an~~ actual driving state ~~(4)~~, in particular the speed of travel, ~~are~~ is delivered to the processing unit or messages therefrom may be saved ~~(28)~~ and may be transmitted to ~~the~~ a driver or traction unit conductor (29) or an external control centre ~~(30)~~.
 12. (Currently amended) The device according to ~~any one of claims 9 to 11~~ claim 9, characterised in ~~that~~ wherein at least one sensor (21, 22) is a vibration sensor, an acceleration sensor, an impact sensor, an acoustic sensor, a sound sensor, an eddy current sensor, a magnetic field sensor, a temperature sensor, a force sensor, an strain sensor, a distance sensor, a radar Doppler sensor or an ultrasound sensor.
 13. (Currently amended) The device according to ~~any one of claims 9 to~~ claim 12, characterised in ~~that~~ wherein the at least one sensor (21, 22) is arranged on a component selected from the group consisting of:

— ~~on a wheelset, in particular on a wheel, on a wheelset axle, or on a wheelset bearing,~~

— ~~on a bogie, a or chassis frame,~~

— ~~on a primary spring suspension, in particular on a spring, on a shock absorber, or on a wheelset guide,~~

—on a secondary spring suspension, in particular on a spring, a shock absorber, preferably on a stabiliser, or a stop buffer,

—on a traction linkage,

—on a drive, in particular on a drive motor, a gear, a clutch, or a drive suspension,

or

—on a brake, in particular a brake disk, on a brake cylinder, on a brake lining, on a brake pad, on a brake linkage or and a brake caliper.

14. (Currently amended) The device according to ~~any one of claims 9 to 13,~~ characterised in that wherein the means for evaluation comprise a signalling device (29) inside the vehicle and/or a signalling device in a mobile or stationary control centre outside the vehicle including a data transmission device (30) from the vehicle to the control centre.